JOHNSON FURNACE INSTRUCTION MANUAL

#900 FURNACE – MANUAL TEMPERATURE CONTROL – DIRECT SPARK IGNITION – NO SAFETY

INSTALLATION INSTRUCTIONS FOR #900 FURNACE-MANUAL CONTROL-SPARK IGNITION

(Consult Form No. 232 While Reading This)

POSITION FURNACE AND CONSOLE IN DESIRED LOCATION. THE BACK OF THE FURNACE (SIDE LID LIFT IS ON) SHOULD BE AT LEAST 20" AWAY FROM THE NEAREST WALL. ANY WALLS, CEILINGS OR FLOORS MADE FROM COMBUSTIBLE MATERIAL THAT ARE SUBJECTED TO THE RADIANT HEAT, SHOULD BE PROTECTED WITH INSULATION BOARD OR SIMILAR MATERIAL. ON INITIAL HEATUP, NEARBY WALLS, ETC., CAN BE CHECKED TO SEE IF THEY NEED PROTECTION.

THE FRONT OF THE FURNACE SHOULD BE LEFT CLEAR, SO THAT THE OPERATOR HAS ENOUGH ROOM TO MOVE ABOUT.

FOR EXHAUSTING FUMES AND EXHAUST GASES, A METAL HOOD WITH AN EXHAUST FAN CAN BE USED. THE HOOD SHOULD BE HIGH ENOUGH THAT IT DOES NOT INTERFERE WITH THE OPERATOR.

A METAL TRAY OR POT CAN BE PLACED BENEATH THE PLUGGED OPENING. IF A CRUCIBLE BREAKS INSIDE THE FURNACE, THE PLUG CAN BE REMOVED WITH TONGS AND THE METAL CAUGHT IN A TRAY.

ASSEMBLE THE LID LIFT BY FOLLOWING INSTRUCTIONS ON FORMS 180 & 181. CONNECT THE FLEXIBLE METAL HOSE BETWEEN THE FURNACE BURNER PORT CASTING AND THE OUTLET PIPE FROM THE CONSOLE BY USING THE UNION FITTING.
SCREW THE SPARK IGNITER INTO THE PORT CASTING.
CONNECT THE CABLE FROM THE CONSOLE TO THE SPARK IGNITER.

CONNECT THE GAS LINE TO THE CONSOLE GAS INLET. WHEN FURNACE IS IN OPERATION, THE PRESSURE SHOULD BE 4 to 14 INCHES ON NATURAL GAS AND 11 INCHES ON LP GAS.

CONNECT 115 VOLT POWER SOURCE TO THE BLACK & WHITE LEADS EXTENDING FROM THE CONSOLE.

SET CRUCIBLE INSIDE FURNACE ON CRUCIBLE REST. LOWER LID ONTO FURNACE.

TURN ON MAIN GAS AND POWER SUPPLY. SEE FORM #179 FOR LIGHTING FURNACE.

LONG HANDLED TONGS CAN BE USED TO PLACE THE METAL THRU THE OPENING IN THE LID. NOTE: THE PIECES SHOULD BE SMALL ENOUGH TO PASS THROUGH THE HOLE WITHOUT BLOCKING TOO MUCH.

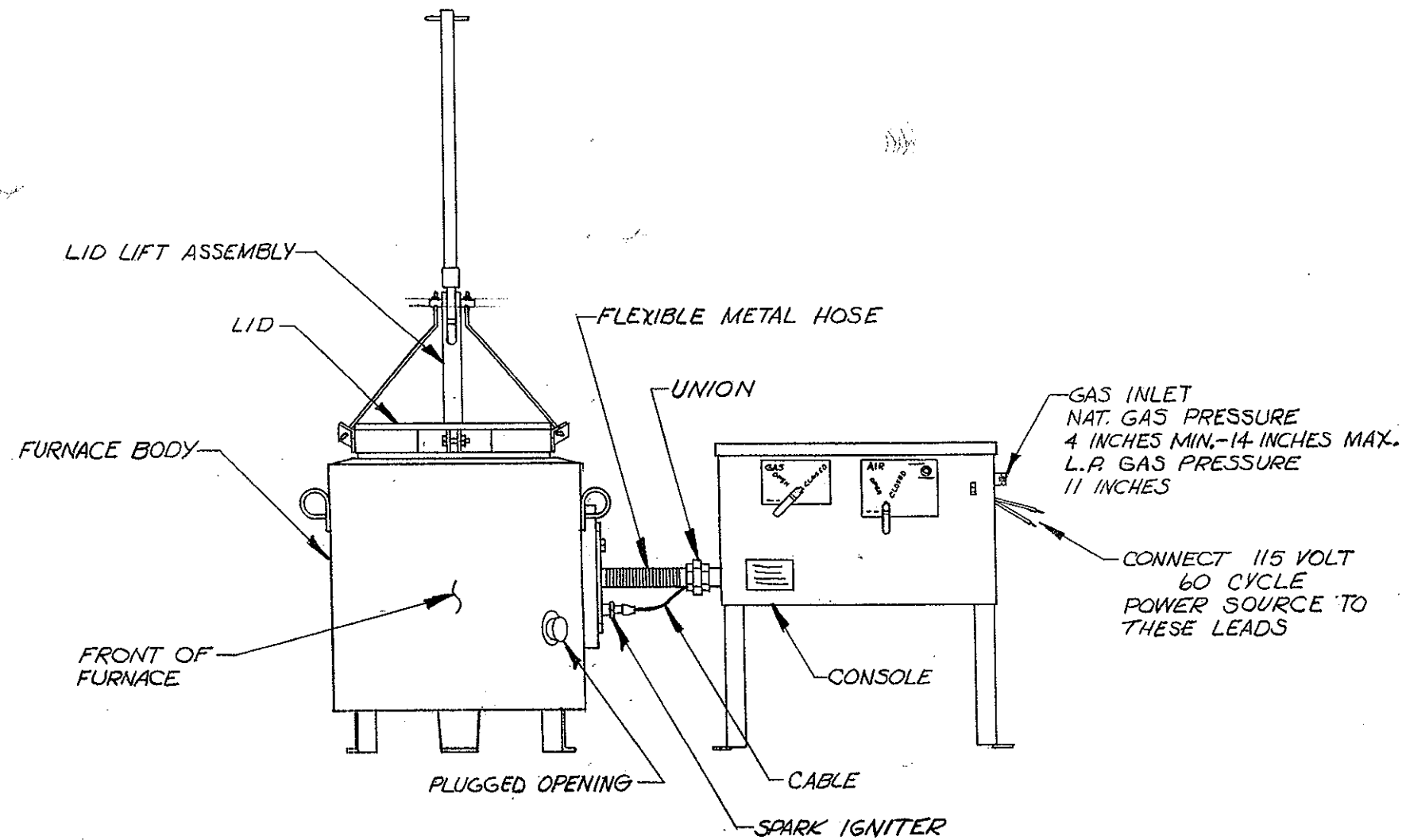
NOTE: AFTER FURNACE HAS BEEN HEATED UP AND COOLED, YOU WILL NOTICE CRACKS APPEAR IN THE LID REFRACTORY AND IN THE FURNACE LINING. THIS IS NORMAL, DUE TO THE EXPANSION AND CONTRACTION OF THE REFRACTORY AND WILL NOT AFFECT THE PERFORMANCE OF THE FURNACE.

ON FIRST HEATUP, THE FURNACE SHOULD BE ALLOWED TO RUN ABOUT TWO (2) HOURS SO THAT THE LINING CAN BE DRIED. YOU WILL NOTICE WATER DRIPPING FROM THE FURNACE.

IT IS EXPECTED THAT THE MORTAR JOINTS BETWEEN THE PRECAST REFRACTORY SECTIONS WILL CRACK. THIS IN NO WAY IMPAIRS THE OPERATION OF THE UNIT.

INSTALLATION DIAGRAM FOR F-900 FURNACE WITH MANUAL CONTROL AND SPARK IGNITION

FORM 232



JOHNSON GAS APPLIANCE CO.
CEDAR RAPIDS, IOWA

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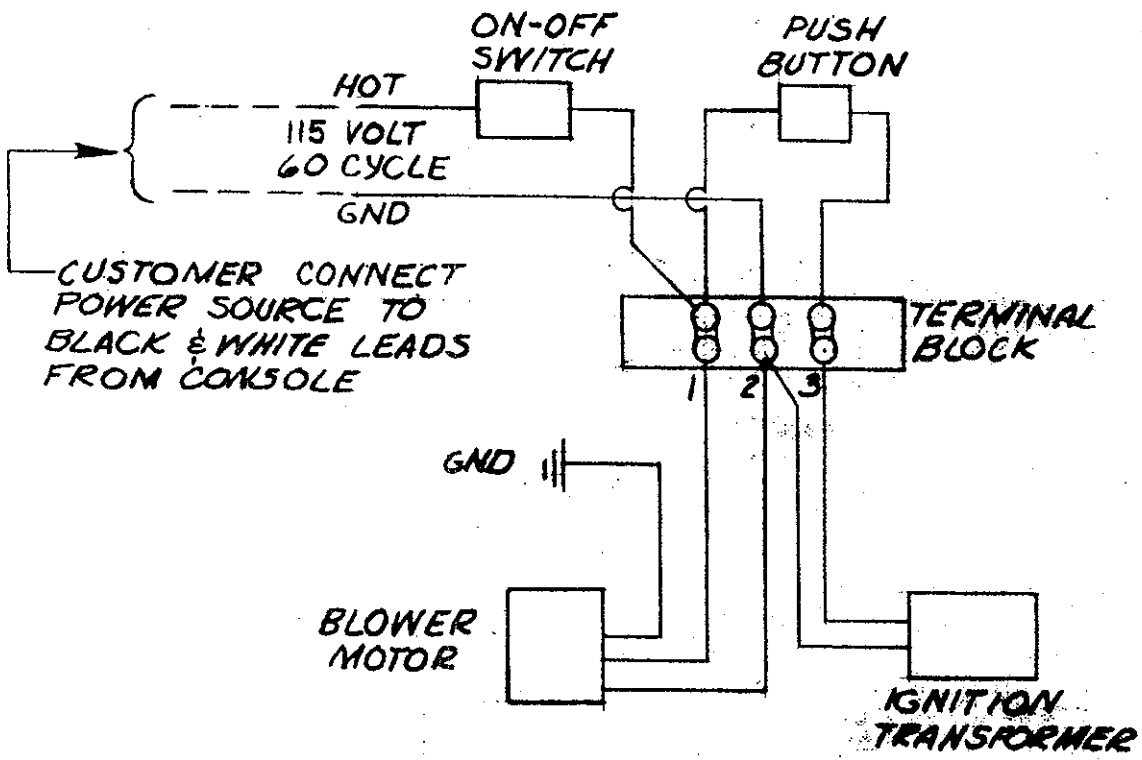

WIRING DIAGRAM FOR F-900 CONSOLE

Mat'l

Title — WITH MANUAL CONTROL ONLY

JOHNSON GAS APPLIANCE COMPANY
CEDAR RAPIDS, IOWA

Used On —

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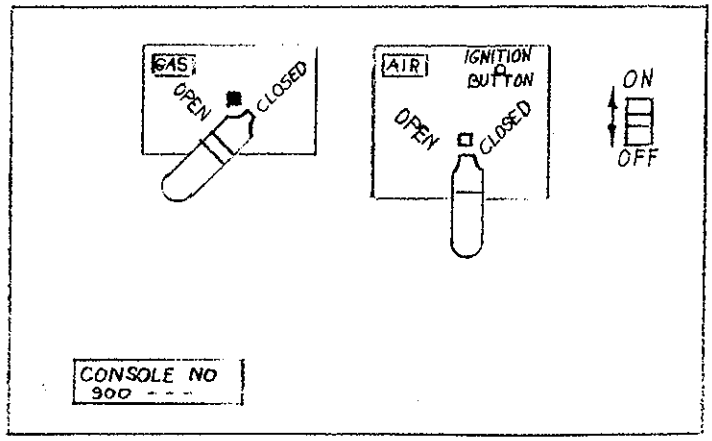
Ck'd		A- FORM 182	
Appr.			
Date	5-17-65		

LIGHTING INSTRUCTIONS FOR #900 FURNACE
MANUAL CONTROL - SPARK IGNITION



1. MAKE SURE THE "GAS CONTROL HANDLE" IS IN THE "CLOSED" POSITION.

2. TURN THE "ON-OFF" SWITCH TO "ON" AND THE BLOWER MOTOR SHOULD RUN.

3. DEPRESS THE "IGNITION BUTTON". THE SPARK IGNITER WILL COME ON AND YOU WILL HEAR A "BUZZING" SOUND (IF THE ROOM IS NOT TOO NOISY).

4. SET THE "AIR CONTROL HANDLE" HALF-WAY BETWEEN THE "CLOSED" & "OPEN" POSITIONS.

5. SLOWLY, TURN THE "GAS CONTROL HANDLE" TOWARD THE "OPEN" POSITION UNTIL THE BURNERS IGNITE. THIS POSITION WILL BE ABOUT HALF-WAY BETWEEN THE "CLOSED" & "OPEN" POSITIONS. THE IGNITION BUTTON CAN NOW BE RELEASED.

NOTE: IF THE BURNERS DO NOT IGNITE RIGHT AWAY, TURN THE "GAS CONTROL HANDLE" TO THE "CLOSED" POSITION.

6. AFTER THE FURNACE HAS RUN ABOUT (10) MINUTES, ADJUST THE "GAS CONTROL HANDLE" TO GIVE A SHARP TAIL OF FLAME OUT THE CENTER HOLE IN THE LID. SLOWLY, TURN THE "GAS CONTROL HANDLE" TOWARD THE "OPEN" POSITION UNTIL YOU CAN CLEARLY SEE THE FLAME. THEN, SLOWLY TURN THE "GAS CONTROL HANDLE" BACK TOWARD THE "CLOSED" POSITION UNTIL THE FLAME SHARPENS UP AND IS BARELY VISIBLE. THIS IS THE PROPER OPERATING POSITION.

7. IF YOU DESIRE TO INCREASE THE GAS INPUT, SLOWLY TURN THE "AIR CONTROL HANDLE" TOWARD THE "OPEN" POSITION UNTIL THE TAIL OF FLAME OBTAINED IN #6 JUST DISAPPEARS. THEN, SLOWLY TURN THE "GAS CONTROL HANDLE" TOWARD THE "OPEN" POSITION UNTIL THE SHARP TAIL OF FLAME REAPPEARS. REPEAT THIS PROCEDURE UNTIL THE DESIRED OR MAXIMUM GAS INPUT IS REACHED.

8. IF YOU DESIRE TO DECREASE THE GAS INPUT, TURN THE "GAS CONTROL HANDLE" TOWARD THE "CLOSED" POSITION UNTIL THE TAIL OF FLAME OBTAINED IN #6 JUST DISAPPEARS. TURN THE "AIR CONTROL HANDLE" TOWARD THE "CLOSED" POSITION UNTIL THE TAIL OF FLAME REAPPEARS. REPEAT THIS PROCEDURE UNTIL THE DESIRED OR MINIMUM GAS INPUT IS REACHED.

9. TO SHUT DOWN THE FURNACE, TURN THE "GAS CONTROL HANDLE" TO THE "CLOSED" POSITION. THEN, TURN THE "ON-OFF" SWITCH TO "OFF".

VENTING REQUIREMENTS

JOHNSON FURNACES

1. POT FURNACES, FORGES, AND MELTING FURNACES

   SINGLE UNITS OR MULTIPLE INSTALLATIONS

   FOR EXHAUST HOODS APPROXIMATELY 6'6" to 7' ABOVE FLOOR, THE EXHAUST FAN SHOULD BE SUFFICIENT TO PROVIDE A 200 FPM FACE VELOCITY AT THE HOOD.

2. OVEN TYPE FURNACES (INCLUDES OVEN FORGES)

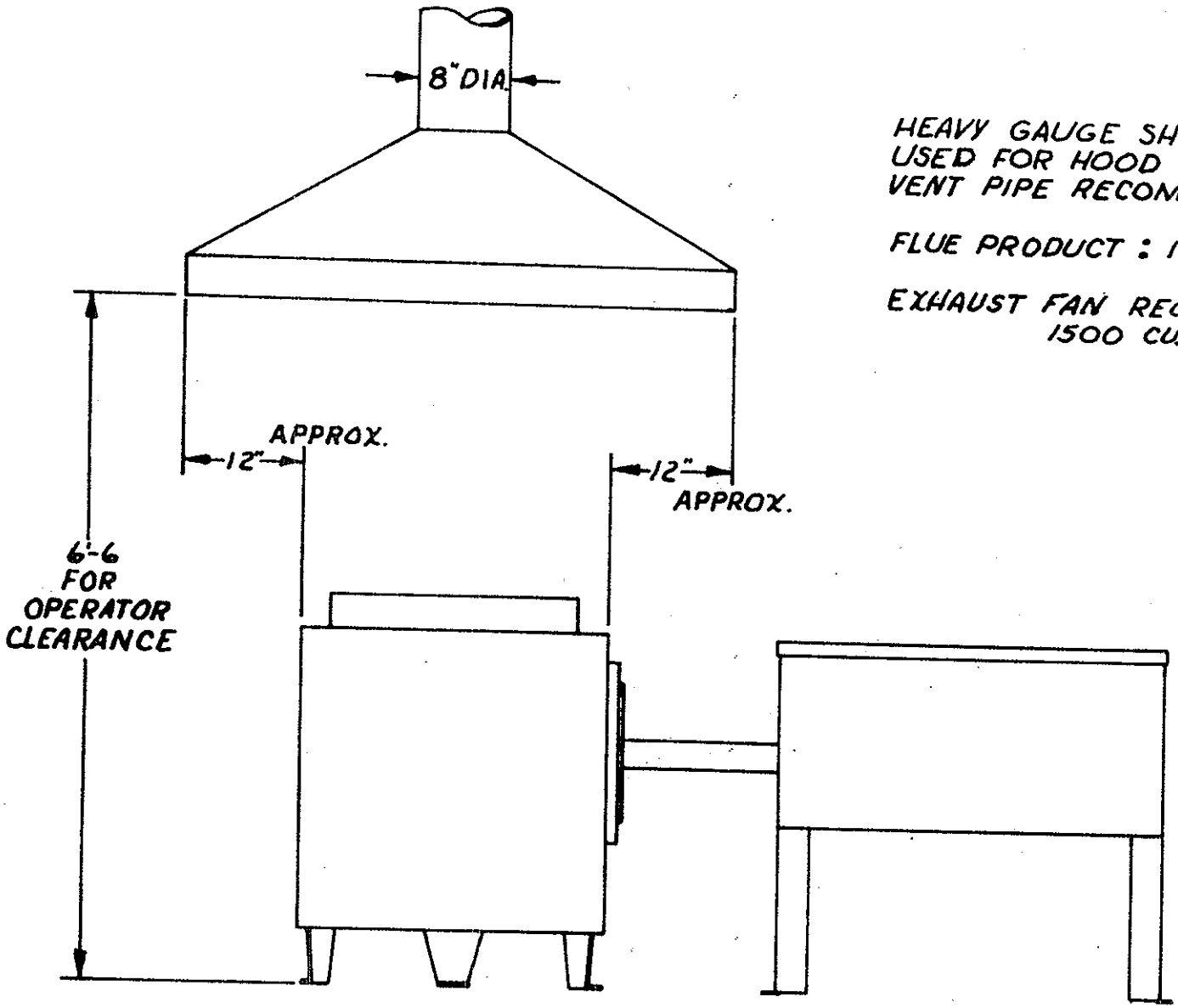
   A. SINGLE INSTALLATIONS

      FOR SINGLE INSTALLATIONS THE VENT REQUIREMENTS SHOULD REDUCE FLUE GAS TEMPERATURE TO 500° OR BELOW. FOR CPM REQUIREMETNS DIVIDE BTU INPUT OF THE FURNACE BY 225. (APPLICABLE WHERE THE VENT HOOD IS 6" to 8" ABOVE EXHAUST OPENINGS)

   B. FOR SINGLE OR MULTIPLE INSTALLATIONS WHEN SINGLE EXHAUST HOOD IS 6'6" to 7' ABOVE FLOOR PROVIDE FOR A 200 FPM FACE VELOCITY.

SUGGESTED METHOD OF VENTING JOHNSON #900 FURNACE

FORM 315



HEAVY GAUGE SHEET METAL SHOULD BE USED FOR HOOD AND STACK. CLASS "A" VENT PIPE RECOMMENDED.

FLUE PRODUCT : 115 CU. FT./MIN. @ 2000°

EXHAUST FAN REQUIREMENT : 1500 CU. FT./MIN.

JOHNSON GAS APPLIANCE CO., CEDAR RAPIDS, IOWA

FORM 315
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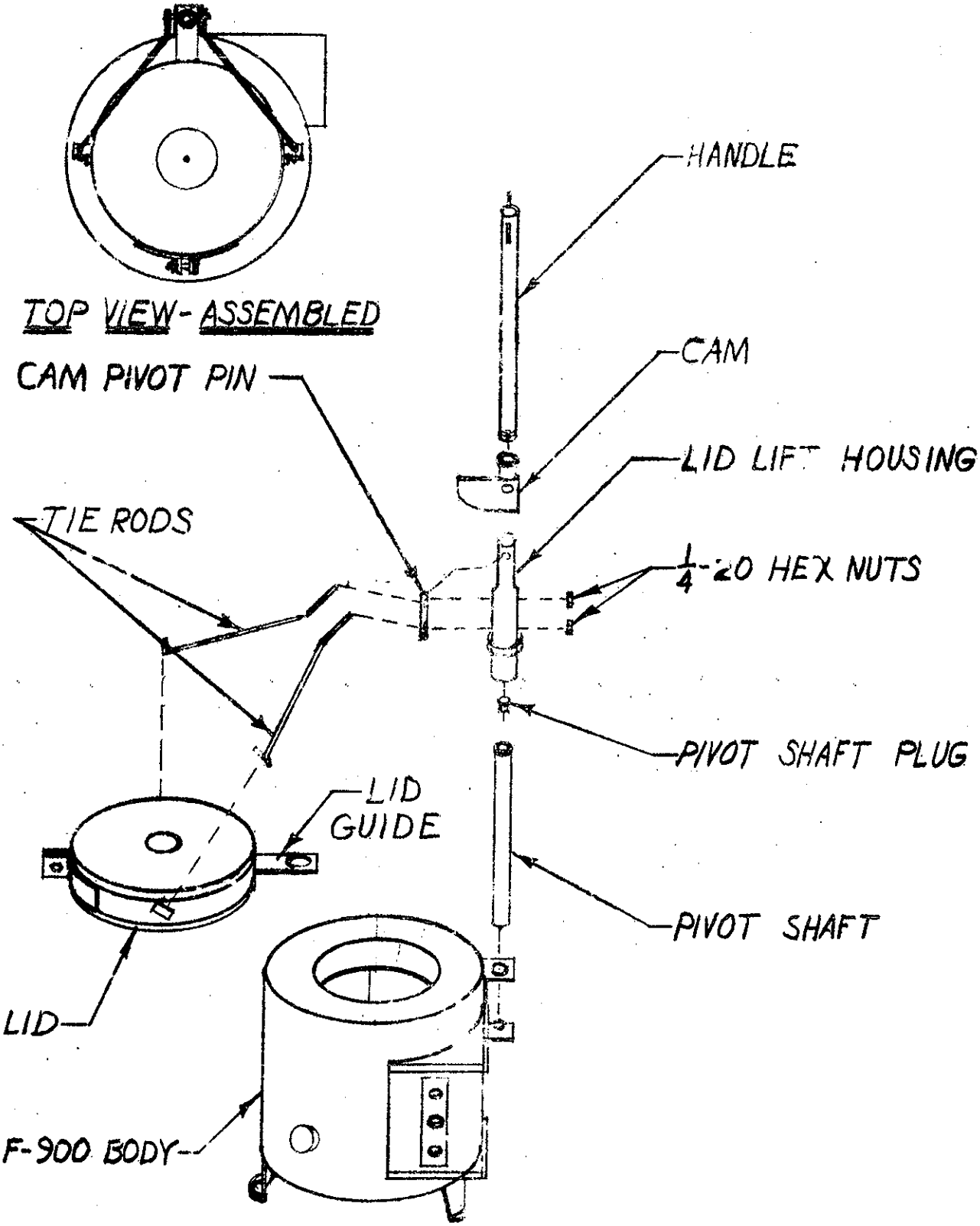
ASSEMBLY OF F-900 LID LIFT



LID LIFT ASSEMBLY INSTRUCTIONS FOR F-900

(CONSULT FORM 180 AS YOU READ THIS)

1) POSITION LID ON TOP OF FURNACE SO THAT HOLE IN LID GUIDE LINES UP WITH HOLE IN TOP OF MOUNTING BRACKET. (ATTACHED TO SIDE OF FURNACE)

2) SET PIVOT SHAFT THROUGH HOLES IN LID GUIDE AND TOP OF MOUNTING BRACKETS, POSITION AGAINST BOTTOM OF MOUNTING BRACKET.

3) INSERT PLUG IN TOP OF PIVOT SHAFT.

4) PLACE LID LIFT HOUSING (SLOTTED END UP) OVER PIVOT SHAFT AND THROUGH THE HOLE IN THE LID GUIDE.

5) PLACE CAM IN SLOT AT TOP OF LID LIFT HOUSING. RAISE HOUSING SLIGHTLY AND LINE UP HOLES IN CAM AND HOUSING. PLACE CAM PIVOT PIN THROUGH HOLES.

6) CONSULT TOP VIEW OF FORM 180. INSERT UNTHREADED END OF TIE RODS IN BRACKET HOLES AT SIDE OF LID. SET THREADED END OF RODS THROUGH HOLES IN CAM PIVOT PIN.

7) POSITION HANDLE IN OPENING AT TOP OF CAM. HOLD HANDLE IN VERTICAL POSITION AND PUSH DOWNWARD TO MAKE SURE CAM AND HOUSING ARE IN LOWEST POSITION. THREAD THE HEX NUTS ONTO THE TIE RODS SO THAT THEY JUST TOUCH THE PIVOT PIN. RAISE AND LOWER THE LID SEVERAL TIMES. TO RAISE THE LID, MOVE THE HANDLE TOWARDS THE FRONT OF THE FURNACE. TO LOWER THE LID, MOVE THE HANDLE TOWARDS THE BACK OF THE FURNACE. AFTER THIS HAS BEEN DONE, CHECK TO SEE THAT THE HEX NUTS ARE AGAINST THE PIVOT PIN. IF THE NUTS ARE TOO TIGHT, THEY WILL PREVENT THE LID FROM SETTING DOWN ON TOP THE FURNACE. IF TOO LOOSE, THE CAM WILL SWING AND ALLOW THE HANDLE TO FALL TOWARDS THE BACK OF THE FURNACE.

NOTE: THE PIVOT SHAFT SHOULD BE OILED AS NEEDED, OTHERWISE THE LID LIFT HOUSING WILL NOT SLIDE UP AND DOWN PROPERLY.